

**We Claim:**

1           1.       A heat pump system having an indoor coil that operates as a  
2       condenser when the system is in a heating mode and an outdoor coil that operates as  
3       an evaporator when the system is in said heating mode, wherein said system  
4       includes:

5           adjustable airflow means for moving supply air over the indoor coil;  
6           a sensor means for measuring outdoor ambient temperatures and sending  
7       ambient temperature data to a programmable computer for adjusting said airflow  
8       means;

9           program means in said computer containing a schedule for continuously  
10       adjusting the airflow means in response to changes in ambient temperatures to  
11       maintain the temperature of the supply air moving over the indoor coil at a constant  
12       level.

1           2.       The system of claim 1 wherein said adjustable airflow means includes  
2       a variable speed fan.

1           3.       The system of claim 1 wherein said supply air temperature is  
2       maintained at a level that is high enough to avoid a cold blow condition in the supply  
3       airflow.

1           4.       The system of claim 3 wherein the discharge pressure of the  
2       compressor is maintained at a level such that the vapor line pressure remains below  
3       an allowable design pressure.

1           5.       The system of claim 3 wherein said supply air temperature is  
2       maintained at a constant level above 98°F and a vapor line pressure below 370PSIG.

1           6.       The system of claim 1 wherein the temperature of the supply air is  
2       maintained as high as possible while controlling the vapor line pressure and  
3       compressor pressure ratio within allowed limits.

1           7.       The system of claim 3 wherein said vapor line pressure limit is within  
2       established standard refrigeration vapor line piping pressure limits.

1           8.       The system of claim 7 wherein said compressor pressure ration limit  
2       is within established limits for reliable operation of a compressor.

1           9.       A heat pump system having an indoor coil that operates as a  
2       condenser when the system is in a heating mode and an outdoor coil that operates as  
3       an evaporator when the system is in said heating mode, wherein said system  
4       includes:

5           a compressor having a discharge pressure;

6           adjustable airflow means for moving supply air over the indoor coil;

7           a sensor means for measuring outdoor ambient temperatures and sending  
8       ambient temperature data to a programmable computer for adjusting said airflow  
9       means;

10          program means in said computer containing a schedule for continuously  
11       adjusting the airflow means in response to changes in ambient temperatures to  
12       maintain the compressor discharge pressure within reliable operating limits.

1           10.      The system of claim 9 wherein said adjustable airflow means includes  
2       a variable speed fan.

1           11.      The system of claim 10 wherein said operation limits are within  
2       established standard limits for refrigeration grade vapor line piping..

1           12.      The system of claim 11 wherein the discharge pressure of the  
2       compressor is maintained at a substantially constant level.

1           13.      A method of operating a heat pump in the heating mode, said heat  
2       pump having a compressor, an indoor coil serving as a condenser in the heating  
3       mode, and an outdoor coil acting as an evaporator in the heating, said method  
4       including the steps of:

5           sensing the outdoor ambient temperature;

6           continually adjusting the indoor airflow over the indoor coil in response to  
7 changes in the outdoor temperature to maintain the supply air temperature at a  
8 constant level.

1           14.    The method of claim 13 wherein the indoor airflow over the indoor  
2 coil is adjusted by regulating the speed of a coil fan motor for passing return air over  
3 the coil.

1           15.    The method of claim 13 wherein the temperature of the supply air is  
2 maintained at a level above which a cold blow condition occurs.

1           16.    The method of claim 13 that includes the further step of maintaining  
2 the discharge pressure of the compressor at a level below a maximum allowable  
3 vapor line pressure for the system.

1           17.    A method of operating a heat pump in the heating mode, said heat  
2 pump having a compressor, an indoor coil serving as a condenser in the heating  
3 mode, and an outdoor coil acting as an evaporator in the heating, said method  
4 including the steps of:

5           sensing the outdoor ambient temperature;  
6           continually adjusting the indoor airflow over the indoor coil in response to  
7 changes in the outdoor temperature to maintain compressor discharge pressure  
8 within reliable operating limits.

1           18.    The method of claim 17 where the indoor airflow over the indoor coil  
2 is adjusted by regulating the speed of a coil fan motor for passing return air over the  
3 coil.

1           19.    The method of claim 18 wherein said operating limits are within  
2 established standard limits for refrigeration guide vapor line piping.

1           20.    The method of claim 19 that includes the further step of maintaining  
2 the discharge pressure of the compressor at a substantially constant level.